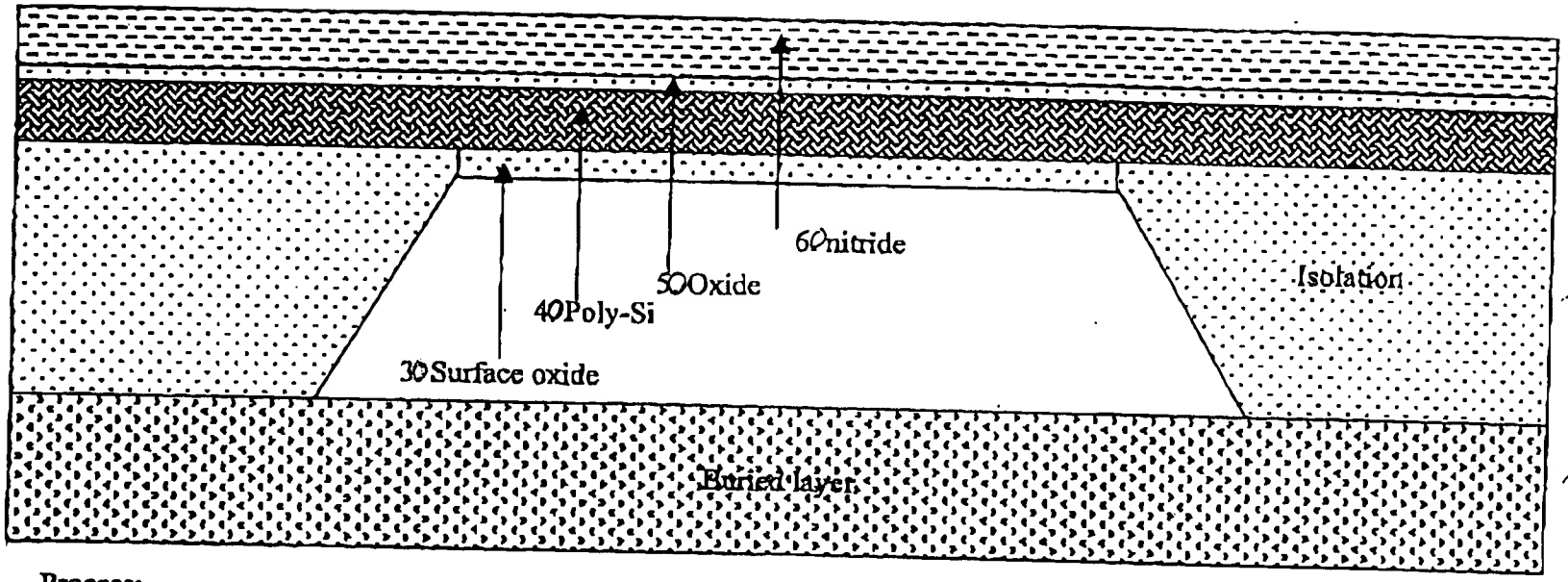
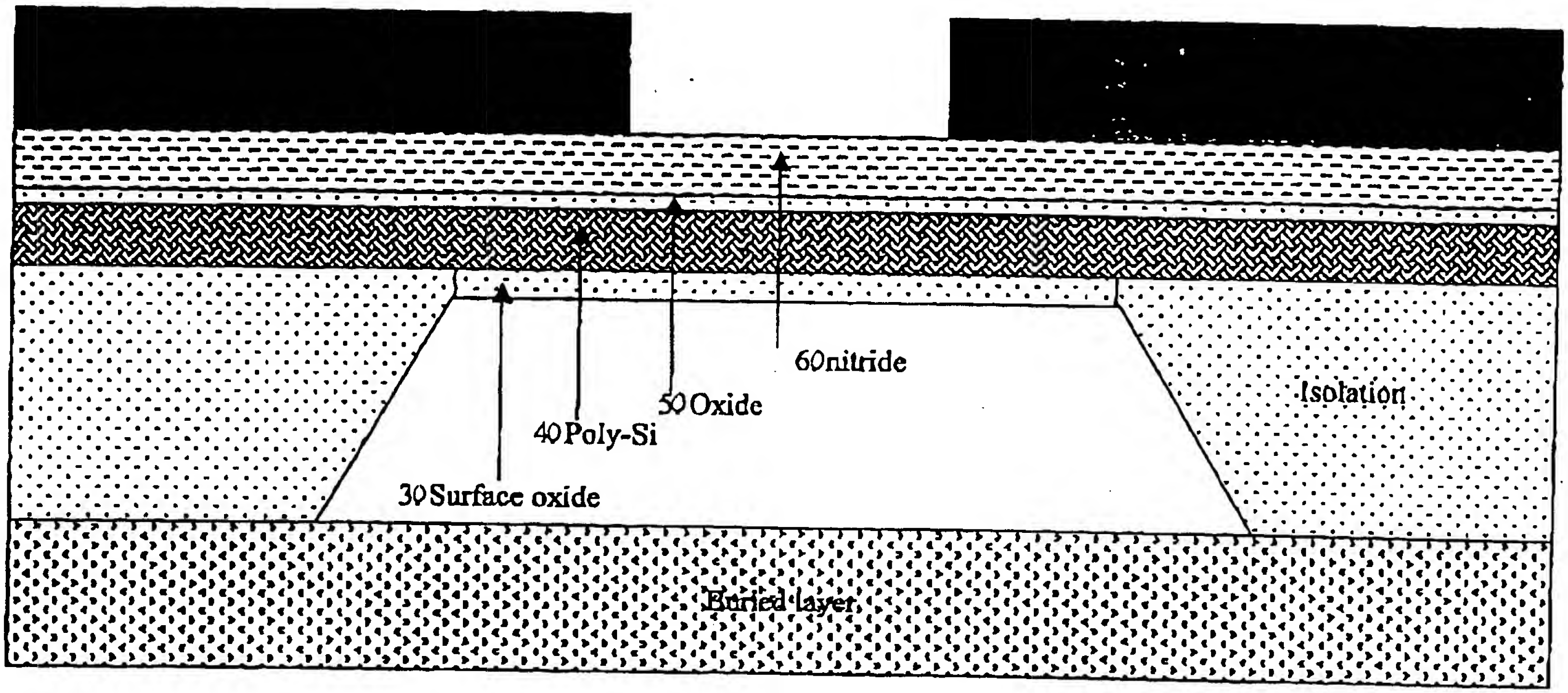


Process:

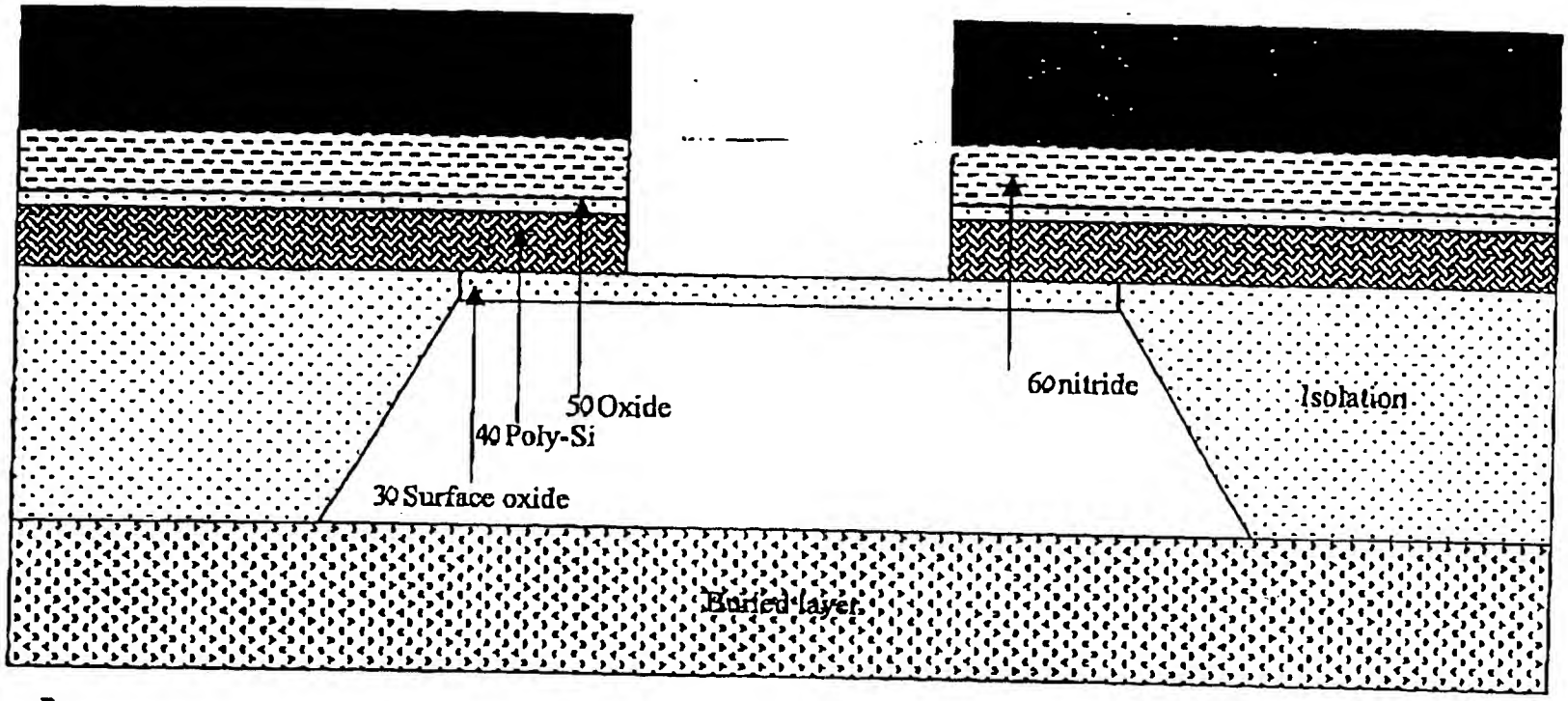
1. Buried layer formation
2. Isolation (STI shown) and collector contact diffusion (not shown)
3. Surface oxidation
4. Poly-Si deposition, thickness ~equal to the thickness of SiGe base
5. Oxide
6. Nitride

Fig. 1A



Process:
7. Emitter window mask

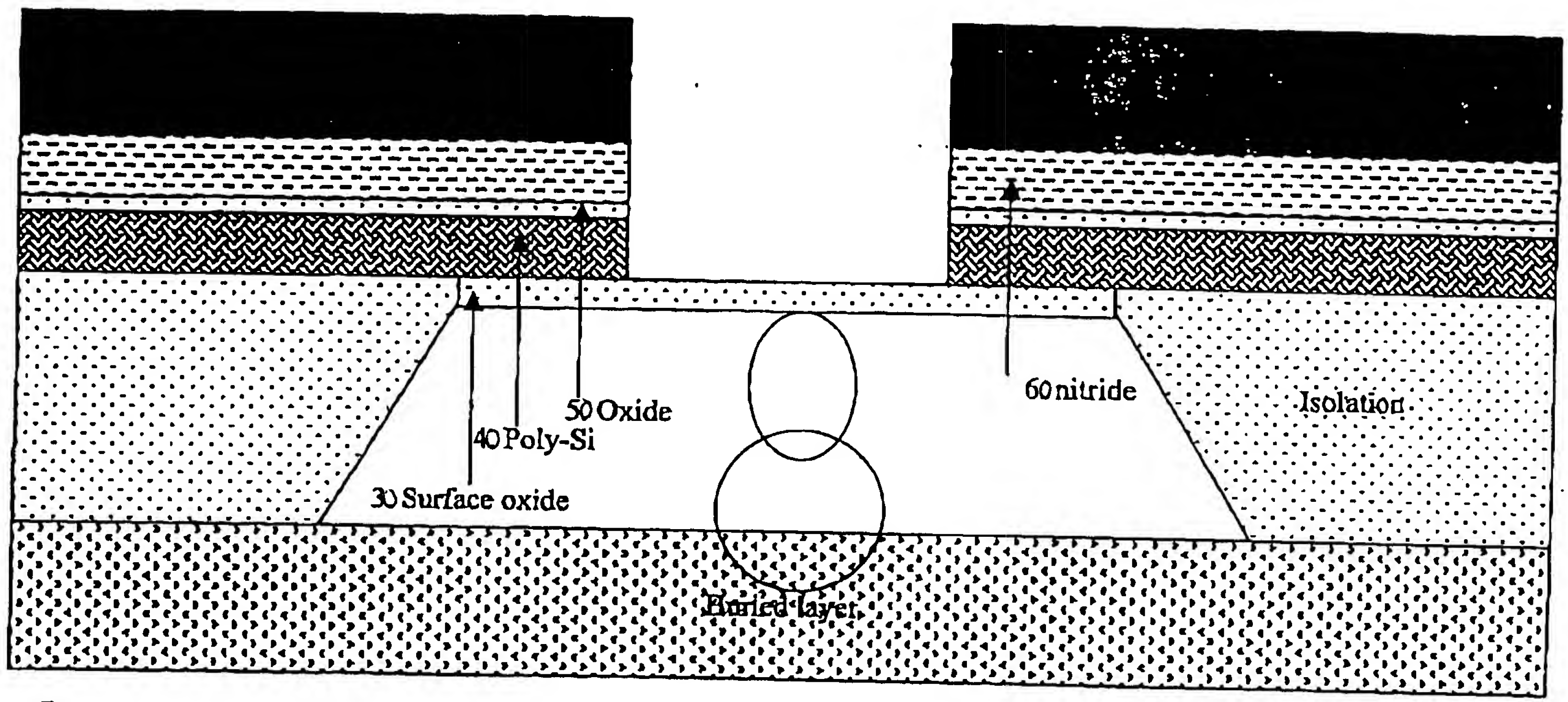
Fig. 1B



Process:

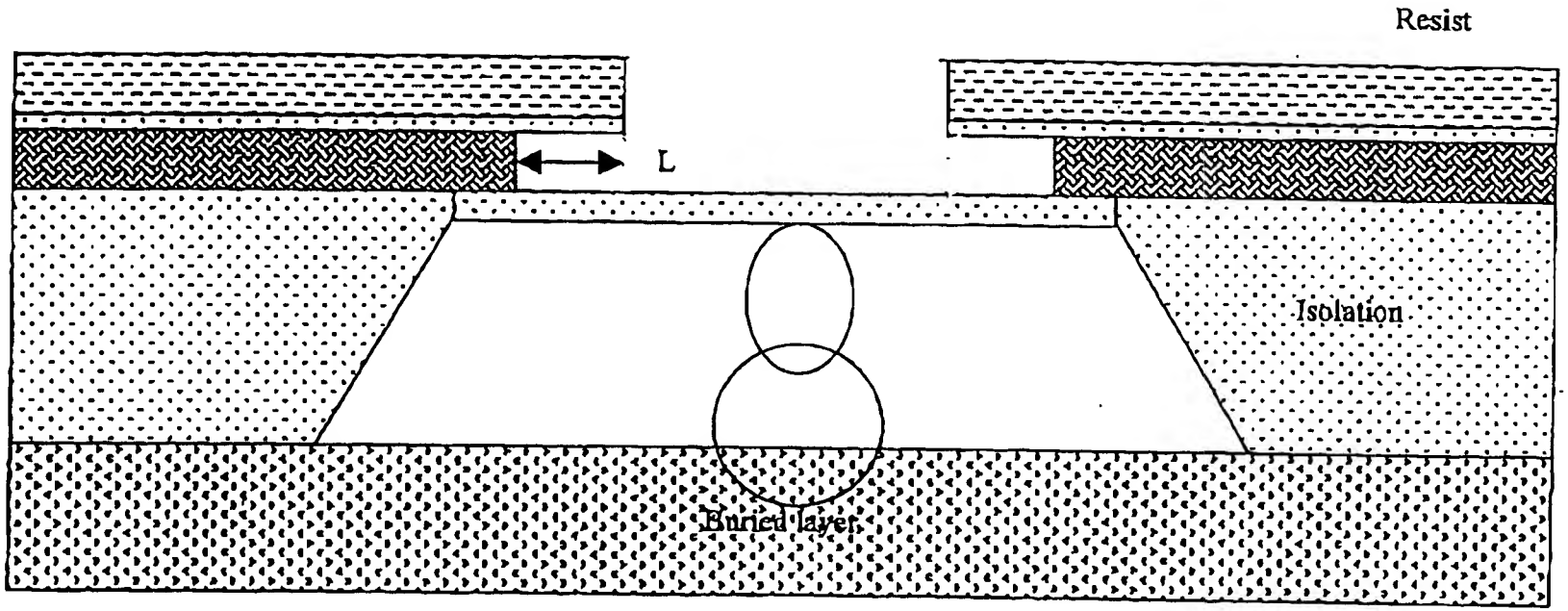
8. Etch nitride, stop on oxide
9. Etch oxide, stop on poly
10. Etch poly, stop on oxide

Fig 1C



Process:
11. Implant collector, self aligned to the emitter window opening

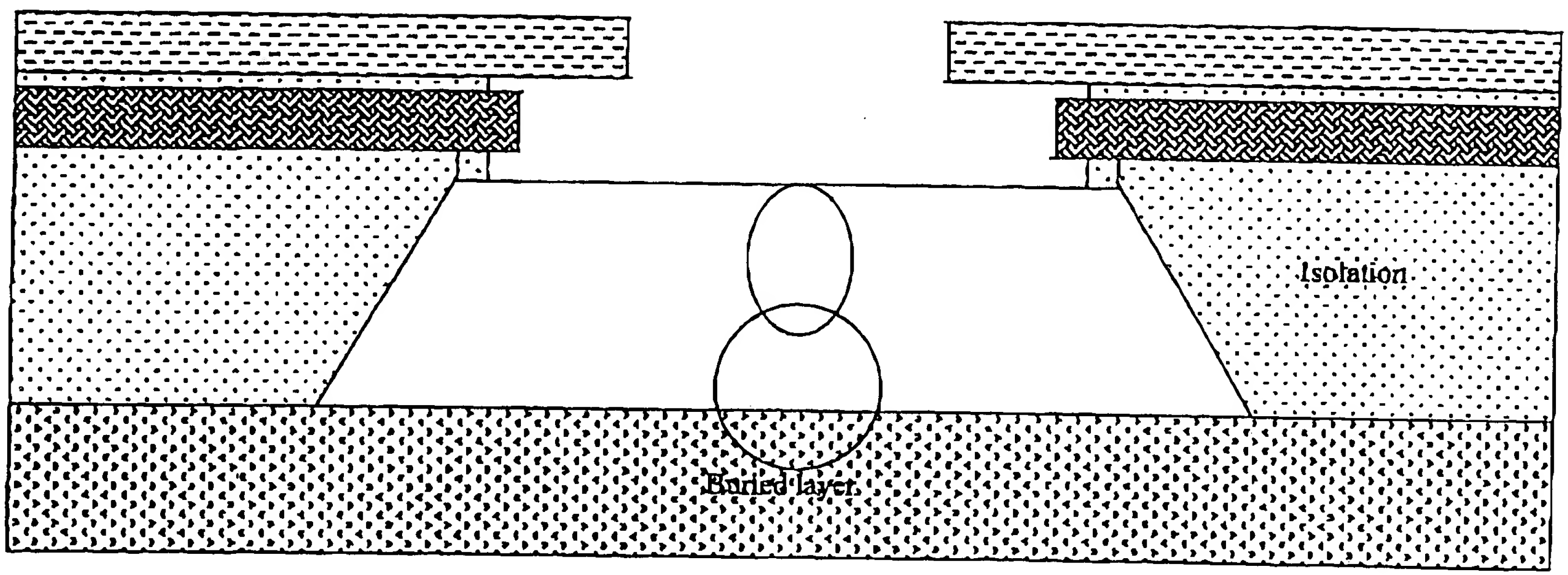
Fig 1D



Process:

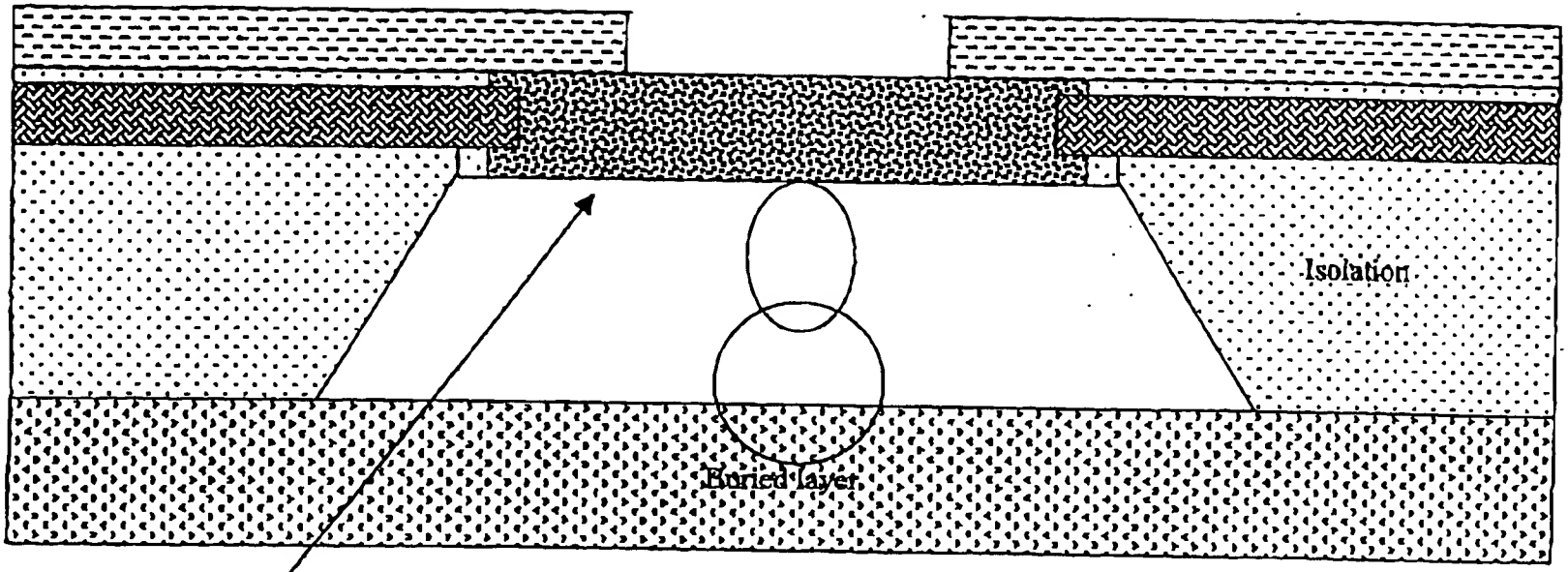
12. Etch poly-Si laterally, selective to oxide and nitride. L should be greater than poly thickness
- Wet etch, e.g. Choline, carried out after the resist strip
- Dry isotropic etch carried out prior to resist strip, followed by resist removal

Fig. 1E



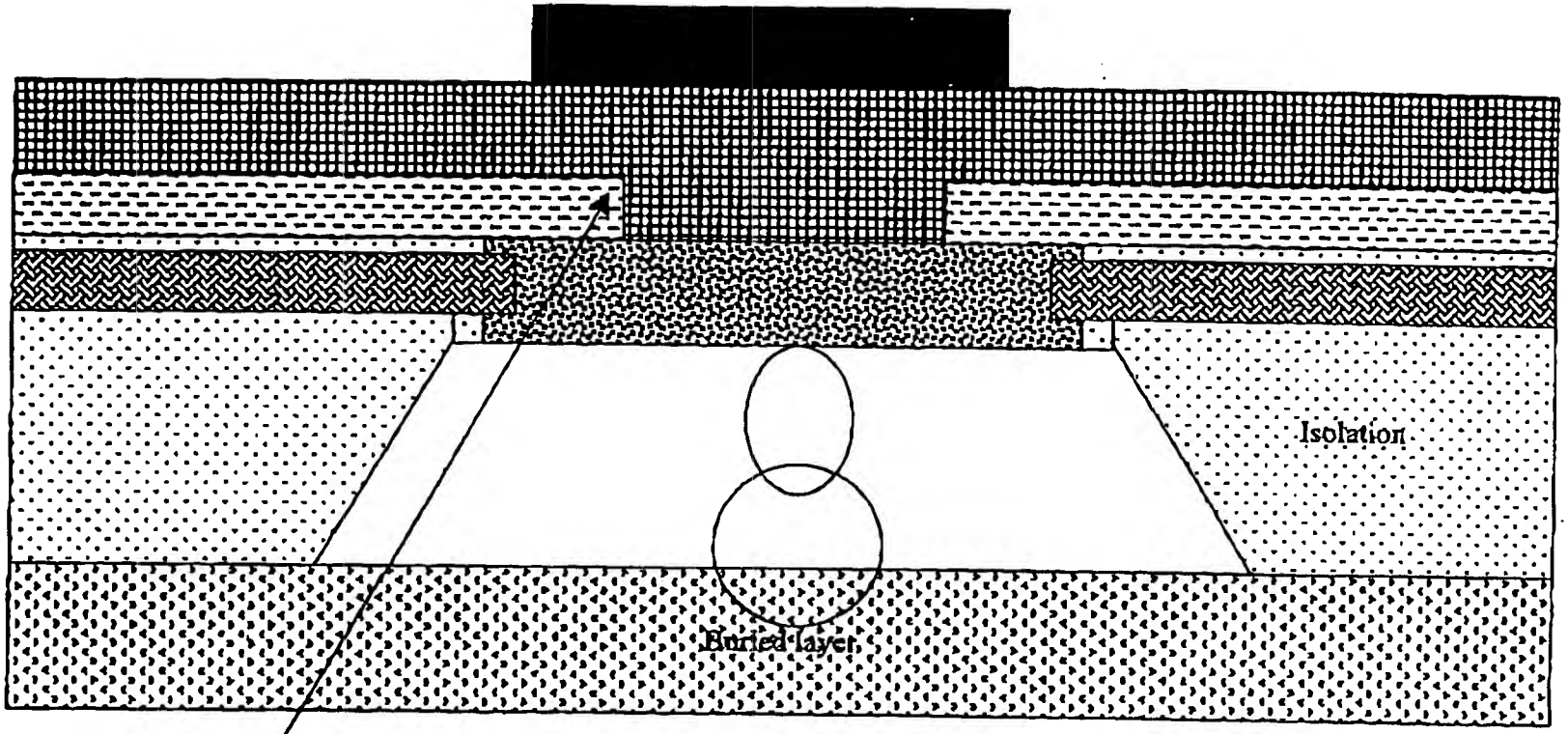
Process:
13. Wet etch oxide, prepare surface for selective SiGe deposition

Fig 1F



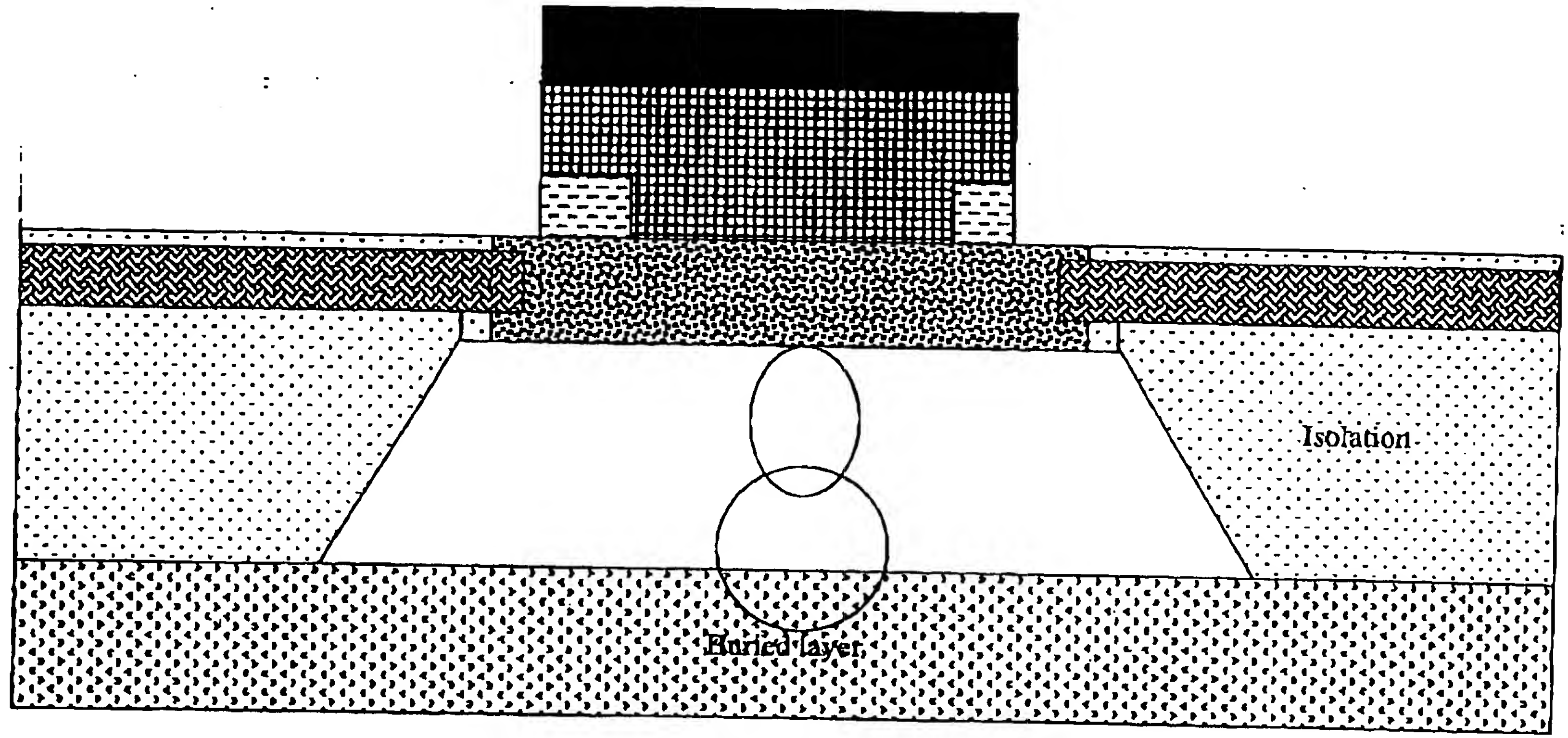
Process:
14. Selective SiGe deposition

Fig. 1G



Process:
14. Emitter poly-Si deposition/doping
15. Emitter poly-Si patterning

Fig. 1H



Process:

17 ~~16~~. Emitter poly-Si etch, nitride etch/stop on oxide

14 ~~17~~. Extrinsic base implant

Fig 1I